carriage. Among the writings of Sir Christopher Wren relative to the stone for St. Paul's, he states, that "All the most eminent masons of England were of opinion that stone of the largest scantlings were there to be found, or no where. An inquiry was made after all the good stone that England afforded; and next to Portland, Rock Abbey stone,* and some others in Yorkshire, seemed the best and most durable; but large stone for the Paul's works was not easily to be had even there."

At first, all the stone brought from Portland was obtained from the crown lands on the north-east of the island; but, as the demand increased, private property in different parts became more valuable, and large quantities of stone were brought from the west and south-east cliffs, without the slightest regard to quality, durability, or any other consideration of fitness, except that of meeting with an immediate sale in the market. I have carefully looked over many specifications for public and private buildings, and find the materials usually described to be of the best quality; but the general tenour of those parts describing the stone to be used rarely amounts to any thing more than the mere well-known name, preceded by an adjective, such as "*good* Portland stone;" but what is to constitute that "*goodness*" is altogether undefined.

Large quantities of Portland stone of an inferior quality are brought to London, not because the island is deficient in the best kind, but because all our large buildings are executed by contracts, at so remarkably low a price, that the mason's study is not what kind of stone will be most durable, but what stone can be wrought by the workmen most expeditiously, and thereby yield the largest profit; and of course the proprietors of quarries will only send such stone into the market as is likely to suit his customers. St. Paul's Cathedral, and many of the churches and other large buildings, erected in the reign of Queen Anne, were constructed with stone very superior, as far as regards durability, to the greater quantity now used; and yet the quarries from whence those sources were derived have been deserted beyond the memory of any inhabitants now living at Portland; and the only reason assigned is, because the merchants find they cannot sell such stone, on account of its being a little harder, and thereby more expensive to work.

Whenever a number of large buildings are being erected at the same time, the demand for stone of the best quality is greater than the quarries already opened can supply. The contractors are bound under a heavy penalty to finish the work by a given time, and hence are compelled to use a material which perhaps they would otherwise reject. It may be owing to circumstances of this kind that portions of the stone used in buildings so recently erected, as the park entrances from Piccadilly, are already in a state of decomposition; the same remarks may be applied to some of the stone used about the new buildings of the British Museum. Most readers are probably aware of the deplorable condition that Blackfriars Bridge was in before the repairs were commenced; I have been informed by persons who recollected the building of it, that the masonry presented innumerable evidences of slow, though certain decay, before the bridge was quite finished, in the year 1770. I shall notice one more example, merely to shew how completely this subject has been neglected heretofore, even by men of first-rate eminence. He, whom we all admired for his abilities and munificence, who had risen to the most distinguished rank in his profession, whose perception and discernment in most things were more acute than in the generality of men,—yes, the late Sir John Soane, about twenty or twenty-five years since, allowed the front of his own freehold residence in Lincoln's Inn Fields to be constructed with Portland stone of such an inferior quality, that it is already evidently mouldering away. It is probable that too much confidence was placed in the mason, who ought to have known better, and have acted differently.

Abundant examples of defective Portland stone might be pointed out; but when we consider that the stone brought from the island, good, bad, and indifferent, is all shipped from the same pier, which is a very small one, and that notwithstanding the blocks are marked in the quarry, so as to denote from whence they were obtained, it is possibly that some of them may be misplaced, we ought not to be surprised if occasionally a very bad stone is conspicously placed in a building that is otherwise in excellent condition; and this we find more particularly to be the case in our modern structures, arising no doubt sometimes from ignorance or inattention, but often from some trifling interest, such as using a stone because it is just of the dimensions required.

These events seem to have brought about an important investigation, in which the reputation and interest of persons connected with architecture are deeply concerned. The Portland merchants had enjoyed the supply of stone to London and the south of England for an almost uninterrupted period of more than 200 years; I say almost, because in the year 1804 a duty of 26*l.* 8*s.* per cent. was imposed on all stone conveyed by sea from one port of Great Britain to another. This was a temporary injury to the Portland trade, for large quantities of Bath stone were brought to London by canals, and consequently free of duty; but in 1823 the coast-duty was taken off, and Portland again took the lead for all superior buildings. But its character was stained, and public confidence was lost, in consequence of a few individuals bringing shiploads of rubbishing stone into the markets, which was used by the unwary masons for all purposes. Many of our noblest structures, which were constructed with these defective materials, rapidly assumed the appearance of premature ruin; the architects and proprietors of buildings united in one universal outcry against all kinds of Portland stone; and it has been condemned without inquiring into the cause of complaint, as wholly unfit and unworthy of being used in substantial edifices.

To explain and illustrate the numerous qualities and localities of Portland stone would far exceed the usual limits of an essay. You will see by analysis* that the ingredients are apportioned in this stone much the same as in most other oolites, therefore, its quality depends greatly upon the manner in which the component parts are united. There are not fewer than fifty or sixty quarries already opened at the Isle of Portland, most of them along the north-east and north-west cliffs, at an elevation of several hundred feet above the sea. The stone from each of these quarries, and from different beds in the same quarry, almost always presents some minute particularities, which, on very attentive examination, serve to distinguish it from others. In many instances, these distinctions are so conspicuous as to be evident on the most casual inspection.

By minutely and attentively examining a specimen of Portland stone that is found after fifteen or twenty years' exposure to the weather, to be in a decomposing condition, its characteristic features will be on the whole lighter coloured than such as is known to be good stone, arising partly from the entire mass being less crystalline, and from spots, veins, and ringes of a lighter tint than the ground. The whitest parts are generally least cemented and most friable; the stone is altogether of an open, powdery texture: and the pores or vacuities being numerous compared with the bulk of solid matter, render it deficient in weight for its size.

Portland stone of the most durable quality is comparatively heavy, of a uniform colour, or rather darker than the last described, owing to the quantity of cement of a compact crystalline texture regularly dispersed throughout the pores; and hence it will resist a greater force to crush it, or to disintegrate the particles. The following comparison will shew the relative peculiarities of good and bad Portland stone, considering the specimen when examined, subject in every respect to the same conditions, such as being equally wet, or dry, &c.

Good.	Bad.
Preponderance of weight	Deficiency of weight.
Dark coloured	Light coloured.
Uniform colour	Party coloured.
Compact and crystalline	Open and powdery.
Hard to crush	Friable.

What are technically called glass veins vary from a line to an inch or more in breadth, and often run completely through a block; they retain their original whiteness, while all the remaining surface becomes covered with lichens; or if, in London, with soot and dirt; whereas the "party-coloured" just named looks more as if some whitish fluid had been sprinkled or thrown upon the stone in patches. Glass veins may be considered unsightly, but they are by no means perishable, neither do they facilitate decay in any whatever. If they occur in steps, pavements, or any other situation, subject to considerable wear, there hardness will soon occasion them to be conspicuously above the general level; therefore such variation of colour is no defect beyond appearance, and causing a surface to wear irregularly.

According to the observations of Professors Daniell and Wheatstone, at the end of the report on the selection of stone for building the new Houses of Parliament, the following inference may be drawn: that in all stones of the same class, the heaviest kind, or that which has the greatest specific gravity, is the most durable and best suited for architectural works; this is given as a sort of general rule, "though liable to individual exceptions;" but it appears to hold good with all the varieties of Portland stone. The specimens from which the following weights have been obtained are among those which have been most tested by exposure to weather:—

	Weight per Cubic Foot. lbs.	oz.	drs.
Grove quarries, best or lower bed, stands the weather pretty well*	147	10	11
Way-croft quarries, top bed, best stone in the island	135	8	12
Yearn-street quarry, top bed	134	10	0
Castles quarry, between the first beds, decomposing quality	132	5	0
Gosling's quarry, bottom bed, decomposes rapidly	131	4	8

—*Lithology; in Trans. of British Architects.*

THE SMOKE NUISANCE.—On Thursday week, Mr. Mackinnon moved for leave to bring in a Bill to "prohibit the nuisance of smoke from the furnaces of factories." The hon. gentleman stated, that the bill was almost identical in its provisions with that he obtained leave to bring in last session. He proposed to take the discussion on the second reading. After a conversation between Mr. Bright, Mr. Ferrand, Mr. Ricardo, Mr. Milnes, Mr. Borthwick, Mr. Hawes, and Mr. M. Phillips, the Earl of Lincoln said he apprehended that there were two questions before the house—, first, whether it was possible by any legislation to suppress this nuisance, and in the second place, whether the scheme proposed was practicable? With reference to the first question, he was inclined to believe that it was possible considerably to abate, if not altogether to remove, the nuisance. He had been in communication with some scientific gentlemen on the subject, but he doubted whether the bill of his hon. friend would be operative. If on discussion the house should be of that opinion, he should be prepared to introduce a measure of his own, being persuaded that the subject itself was not only important with reference to the public health, but also in an economical point of view. Mr. Muntz said that there were many difficulties connected with the subject. It might be practicable to effect the hon. mover's object in respect of some trades, but it would be impracticable in the case of others. Any attempt of the sort with respect to the iron trade would ruin it. Any legislation on the subject required great care, and ought to be well considered. After a few words from Mr. M. Phillips, Mr. Becket, Mr. Gill, and Mr. Alderman Copeland, leave was given to bring in the bill.

* The ashlar at the east end of Greenwich Hospital appears to be Roche Abbey stone, which is likely to be the case, as Sir C. Wren had a high opinion of that material.

* The following analysis of oolites, as given by Professor Daniell, in the report on the selection of stone for building the new Houses of Parliament, will shew how nearly the proportional quantities of the component parts in four specimens, possessing very different degrees of durability when exposed to the weather, approach each other. They are chiefly composed of carbonate of lime; the greatest difference does not amount to three per cent. of that material, and the Portland contains a small quantity of silica.

	Ancaster.	Bath, Box Quarries.	Portland, Way-croft Quarries.	Ketton.
Silica	....	....	1·20	....
Carbonate of lime	93·59	96·59	95·16	92·17
Carbonate of magnesia	2·90	2·50	1·20	4·10
Iron alumina	·80	1·20	·50	·90
Water and loss	2·71	1·78	1·94	2·83
Bitumen	A trace.	A trace.	A trace.	A trace.

* The reason of this stone being so much heavier than any other marketable stone in the island, is its being so full of shells, which are of much greater specific gravity than the general mass: we must not therefore infer that this stone is considerably more durable than any of the others, notwithstanding its weight far exceeds them.